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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 62448A	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US 03/36518	International filing date (day/month/year) 14.11.2003	Priority date (day/month/year) 17.12.2002
International Patent Classification (IPC) or both national classification and IPC C10M105/18		
Applicant DOW GLOBAL TECHNOLOGIES INC. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 30.06.2004	Date of completion of this report 17.03.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Dötterl, E Telephone No. +49 89 2399-7844



**INTERNATIONAL PRELIMINARY
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I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-11 as originally filed

Claims, Numbers

1-17 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

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III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 1-6,8-14,16-17, in part; 7,15

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 1-6,8-14,16-17, in part; 7,15 are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

☒ the claims, or said claims Nos. 1-6,8-14,16-17, in part; 7,15 are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 1-6,8-14,16-17, in part; 7,15

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the Standard.

☐ the computer readable form has not been furnished or does not comply with the Standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	-
	No: Claims	1-6,8-14,16-17
Inventive step (IS)	Yes: Claims	-
	No: Claims	1-6,8-14,16-17
Industrial applicability (IA)	Yes: Claims	1-6,8-14,16-17
	No: Claims	-

2. Citations and explanations

see separate sheet

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

- 1 Present claims relate to an extremely large number of possible compounds/products/methods. Support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the compounds/products/methods claimed:

Claims 1 and 8 and 17 are directed to a compound having the formula AB_n , to a composition comprising the same and a process for its preparation. The definition of A and B includes a broad range of compounds. Especially, the expression "active hydrogen atom", used for defining component A is vague and very broad. It includes for example carboxylic acids, α -hydrogens of a carbonyl compound or amines. However, supported and disclosed for A are only alcohols having 1-10 carbon atoms, cycloalkyl alcohol and glycol as defined in dependent claims 2-4. The expression "active hydrogen atom", used for defining component A furthermore is unclear. The application thus does not fulfill the requirements of Art. 5 and 6 PCT.

- 2 Furthermore, the initial phase of the search revealed a very large number of documents relevant to the issue of novelty. So many documents were retrieved that it is impossible to determine which parts of the claim(s) may be said to define subject-matter for which protection might legitimately be sought (Article 6 PCT). For these reasons, a meaningful search over the whole breadth of the claims was impossible.
- 3 Present claims 7 and 15 relate to a compound/product wherein B is defined by being the residue of a "commercially available traction compound". These claims lack disclosure, support and clarity (Articles 5 and 6 PCT) to such an extent, that a meaningful search of these claims was impossible.
- 4 The search has been carried out for those parts of claims 1-6, 8-14 and 16-17 which appear to be supported and disclosed, namely those parts relating to the compounds/products/methods wherein A is an alcohol as disclosed in dependent claims 4 and 12 and B an epoxide as disclosed in dependent claim 6 and 14.

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The examination of the application will be prosecuted on the basis of the invention in respect of which a search has been carried out. The application has to be limited to the invention searched.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: US2197102
D2: US5563251
D3: US5110961
D4: EP0761804
D5: EP0482759

- 1 The present application does not meet the requirements of Article 33(2) PCT, because the subject-matter of the following claims lacks novelty:
 - 1.1 Claim 1 is directed to a compound according to formula 1, Claim 8 to a composition comprising a base fluid and a compound according formula 1.
Claim 17 is directed to a process for producing a compound according to formula 1 in the presence of a catalyst.

D1 discloses reaction products of cyclohexene oxide with alcohols, notably glycol, cyclohexanol, sorbitol, which are obtained in the presence of a catalyst (D1, examples IV-VI, col. 2, l. 10-33).

D2 discloses reaction of sorbitol with epoxy butane and epoxy decane (D2, examples 1-6). Reference is made to Item VII, 3 below.

D3 discloses the synthesis of isopropoxy cyclohexanol by reaction of cyclohexene oxide with isopropanol (D3, examples 3-8).

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D4 discloses a lubricating composition comprising a mineral oil and polybuteneoxide mono-octylether having 8 oxybutylene groups (D4, examples 43, 43, 60).

D5 discloses a lubricating composition comprising a polyoxybutylene glycol having 10 oxybutylene units (D5, claims 1, 4, 16, 20)

Thus claims 1-6, 8-11, 13, 16, and 17 lack novelty over D1, D2 and D3 (Art. 33(2) PCT).

2 Inventive Step

If, after amendment, the novelty of the independent claims is established, the claimed subject-matter also appears to lack an inventive step (Article 33(3) PCT).

Further Defects:

- 1 Claim 1 and 5 discloses that B is either cycloalkene oxide or cycloaliphatic epoxide having 4-12 carbon atoms. Said claims have the same scope.
- 2 Claim 3 is dependent on claim 2 and discloses bisphenol A, which is, however, not in the scope of claim 2.
- 3 Claim 6 is dependent on claim 5 and discloses, that B can be ethylene oxide or propylene oxide. However, these compounds do not have 4-12 carbon atoms and thus are not within the scope of claims 1 and 5. Several non cyclic epoxy-compounds are mentioned, which also are not in the scope of claims 1 and 5. The same applies for claim 13. Furthermore the term 1,4-butylene oxide is unclear.

Therefore said claims lack clarity according to Art. 6 PCT.